## REMARKS/ARGUMENTS

Applicants acknowledge, with thanks, receipt of the Office Action dated February 29. 2007. This amendment is submitted in response to the February 29. 2007 Office Action.

Claims 1, 6, 9, 11, 20-23, 30 and 34 have been amended. Claims 1, 20-23, 30 and 34 were amended to add the term 'mammalian' and remove the term 'animal' where appropriate, as will be further explained herein *infra*. This is not new matter as it is disclosed in the original specification (see e.g. original claim 5). Claim 6 was amended to change its dependency to claim 1 because claim 5, which originally depended from claim 1, was canceled. Claim 9 was amended to delete that the donor nucleus is an embryonic stem cell, embryonic germ cell or primordial germ. Claims 1, 11, 30 and 34 were amended to remove the terms substantially pursuant to comments by the examiner. Claims 5, 8 and 37-40 have been canceled without prejudice or disclaimer.

### NON ART MATTERS

Claims 1-15, 20-23, 30 and 34-43 stand rejected under 35 U.S.C. § 112, first paragraph because although the specification is enabling for methods of preparing a reprogrammed diploid mammalian cell, the specification is not enabling for methods of preparing a reprogrammed diploid mammalian cell from non-mammalian cells or non-mammalian nuclei through the use of a non-mammalian recipient cell, or the production of a mammal, mammalian organs, tissues or animals. By this amendment, claims 1, 30 and 34 have been amended to recite that the recipient cell, donor cell or nucleus are mammalian cells or nuclei. Therefore, withdrawal of this rejection is requested.

In addition, Claims 1-15, 20-23, 30 and 34-43 stand rejected under 35 U.S.C. § 112, first paragraph because the specification does not enable the production of a mammal, mammalian organs or mammalian tissues; *citing* Pennisi and Vogel (2000), page 1722, col. 1, para. 2, lines 9-14 (*hereinafter* Pennisi). For reasons that will now be set forth, the applicant respectfully disagrees.

Pennisi is not relevant to the claims because Pennisi only discusses methods involving nuclear transfer, not nuclear addition. The methods discussed in Pennisi require that the recipient cell is enucleated before the donor cell or donor nucleus is introducted into the recipient cell. This distinction is made in the specification of the present application which states:

> Nuclear addition differs from nuclear transfer in that a nucleus is added to a non-enucleated cell which may then lose or be subjected to a subsequent removal (enucleation) of the recipient or host cell's nucleus or nuclear DNA. Nuclear addition has certain advantages

> over nuclear transfer which can enhance the efficiency of nuclear reprogramming and developmental competence for the generation of animal cells, cell lines, tissues, organs, embryos and animals ... (page 1, lines 7-12).

Moreover, the specification includes experimental data in the examples showing not only that the claimed methods of nuclear addition have been successfully carried out, but also that the efficiency of these methods is significantly higher than that of comparable nuclear transfer methods (*see* e.g. Example 1 and Example 3). Furthermore, the examples include successful experiments carried out in pigs (*see* Examples 3-6), which according to Pennisi are not amenable to the application of nuclear transfer methodologies. Thus, for the reasons just set forth the methodologies recited in the claims as currently amended can be carried out by one skilled in the art so as to produce mammals, mammalian organs or mammalian tissues. Therefore, withdrawal of this rejection is requested.

Claims 1-23 and 30-43 stand rejected under 35 U.S.C. § 112, 2nd paragraph, for being indefinite. Specifically, claims 1, 11, 30 and 34 contain the terms "substantial removal" and "substantial destruction" or "substantially removed or destroyed." Withdrawal of this rejection is requested for the following reasons. Claims 1, 11, 30 and 34 have been amended to delete the terms "substantial removal" and "substantial destruction" or "substantially removed or destroyed."

In addition, claims 1, 30 and 34 stand rejected because there is no limitation that results in a reprogrammed mammalian cell. The examiner suggested a wherein clause; however, the applicant believes that the claims as now amended meet this requirement (see e.g. claim 1, line 14: "to generate a reprogrammed diploid mammalian cell"; claim 30, line 9: "to generate a reprogrammed diploid mammalian cell"; and claim 34, line 15: "to generate a reprogrammed diploid embryonic mammalian cell or embryo." Therefore, withdrawal of this rejection is requested.

Claims 20-23 stand rejected for being improperly dependent upon claim 1. Furthermore the examiner states that claims 20-23 state 'animal' and as such are broader in scope than claim 1. Claims 20-23 have been amended to refer to mammal/mammalian in order to be consistent with claim 1. Claims 20-23 directly depend from claim 1, and therefore contain each and every element of claim 1. If an independent claim is unobvious then *a fortiori* a dependent claim which contains all of the limitations of the independent claim plus a further limitation is unobvious. *Hartness International Inc. v. Simplimatic Engineering Co.,* 2 USPQ2d 1826, 1831 (Fed. Cir. 1987). Thus, claims 20-23 should be in condition for allowance for the same reasons as claim 1.

## ART MATTERS

Claims 37, 38 stand rejected under 35 U.S.C. § 102(b) as being anticipated, or in the alternative under 35 U.S.C. § 103 as being obvious, over Thompson et al. (1998) Science, Vol 282, pp. 1145-1147. Claims 37, 38 stand rejected under 35 U.S.C. § 102(b) as being anticipated, or in the alternative under 35 U.S.C. § 103 as being obvious, over Games et al. (1995) nature, Vol. 373, pp. 523-527. Withdrawal of these rejections is requested because these claims have been canceled.

Claims 1, 2, 4, 7, 11-13, 20, 21, 30, 34, 36 and 41-43 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Clement-Sengewald et al. (1990) Reprod. Domestic Animals,Vol. 25,pp. 14-21 (*hereinafter* Clement-Sengewald). For reasons that will now be set forth, withdrawal of this rejection is now requested.

Independent claims 1 and 34 as now amended recite that the donor cell or donor nucleus is a somatic cell or a nucleus derived therefrom. Independent claim 30 as now amended recites the donor nucleus is derived from a somatic cell. By contrast, Clement-Sengewald describes methods involving the fusion of two bastomeres and the subsequent removal of one of the nuclei. As the examiner has correctly noted, blastomeres are pluripotent cells found in teh earliest stage of an embryo, and therefore, they cannot be somatic cells. In addition, Clement-Sengewald describes fusion of two blastomeres from the same embryo (Fig. 1); therefore, Clement-Sengewald cannot involve reprogramming of the donor nucleus because both donor and recipient nuclei have the same phenotype. Therefore, nothing in Clement-Sengewald discloses a method of preparing a reprogrammed diploid mammalian cell in which the donor cell or donor nucleus is a somatic cell or a nucleus derived therefrom. Thus, Clement-Sengewald does not disclose every element of independent claims 1, 30 and 34.

Claims 2, 4, 7, 11-13, 20, 21, 36 and 41-43 directly depend from claim 1 and therefore contain each and every element of claim 1. Therefore, claims 2, 4, 7, 11-13, 20, 21, 36 and 41-43 are not anticipated by Clement-Sengewald for the reasons already set forth for claim 1.

Claims 1 and 10 stand rejected under 35 U.S.C. § 103(a) as being obvious in view of hte combination of Clement-Sengewald and Wakayama et al. (1998) Nature 394, pp. 369-374 (*hereinafter* Wakayama). For reasons that will now be set forth, withdrawal of this rejection is now requested.

The aforementioned deficiency in Clement-Sengewald is not remedied by any teaching of Wakayama. Wakayama relates to methods of nuclear transfer, not nuclear addition (*see* Abstract of

Wakayama, which confirms that the recipient oocytes were enucleated before the introduction of donor nuclei). Therefore, nothing in Wakayama discloses a method of preparing a reprogrammed diploid mammalian cell in which the donor cell or donor nucleus is a somatic cell or a nucleus derived therefrom. Thus, Wakayama does not disclose every element of independent claim 1. Because neither Wakayama nor Clement-Sengewald disclose a method of preparing a reprogrammed diploid mammalian cell in which the donor cell or donor nucleus is a somatic cell or a nucleus derived therefrom, neither Wakayama or Clement-Sengewald alone or in combination teach or suggest all of the elements of independent claim 1. Claim 10 directly depends from claim 1 and therefore contains each and every element of claim 1. Thus, claim 10 is not obvious in view of Clement-Sengewald and/or Wakayama for the reasons already set forth for claim 1.

## CONCLUSION

For the reasons just forth, the application as currently amended is now in condition for allowance and a Notice of Allowance is earnestly solicited. If there are any fees necessitated by the foregoing communication, the Commissioner is hereby authorized to charge such fees to our Deposit Account No. 50-0902, referencing our Docket No. 78870/00004.

Respectfully submitted,

Date: May 17, 2007

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